

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for controlling subscriber access in a network capable of establishing connections with a plurality of domains, comprising:  
 receiving, at an access server coupled to a first communication network and a second communication network, a communication from a subscriber on said first communication network, said communication optionally including a domain identifier associated with a domain on said second communication network; and  
~~determining whether said subscriber is authorized to access said domain based upon said domain identifier and a list of authorized domains for a virtual circuit used to receive said communication; and~~  
 authorizing subscriber access to said domain on said second communication network upon determining when said domain identifier is included in said a list of authorized domains for a virtual circuit used to receive said communication, said authorizing responsive to said receiving.
2. (Original) The method of claim 1, further comprising terminating said communication when said domain identifier is not included in said list.
3. (Original) The method of claim 1 wherein said communication comprises a Point-to-Point Protocol (PPP) session.

4. (Original) The method of claim 3 wherein  
said PPP session comprises a tunneling session;  
said determining further comprises assigning a tunnel ID; and  
said PPP session is forwarded onto a tunnel associated with said tunnel ID when said  
subscriber is authorized to access said domain.
5. (Original) The method of claim 4 wherein said tunneling session comprises an L2TP  
session.
6. (Original) The method of claim 5 wherein said determining further comprises:  
issuing an authorized domain list request including a virtual circuit identifier;  
receiving an authorized domain list that includes authorized domains for said identifier;  
indicating said domain is unauthorized when said domain name is not in said domain list;  
indicating said domain is authorized when said domain name is in said domain list;  
issuing a tunnel ID request including said domain name when said domain name is  
authorized; and  
receiving a tunnel ID.
7. (Original) The method of claim 6 wherein  
said authorized domain list request is serviced by an AAA server; and  
an AAA server services said tunnel ID request.

8. (Original) The method of claim 6 wherein said virtual circuit identifier comprises a VPI/VCI identifier.
9. (Original) The method of claim 5 wherein said determining further comprises:  
issuing a tunnel ID request including said domain name and a virtual circuit identifier; and  
receiving a tunnel ID.
10. (Original) The method of claim 9 wherein an AAA server services said tunnel ID request.
11. (Original) The method of claim 9 wherein said virtual circuit identifier comprises a VPI/VCI identifier.
12. (Original) The method of claim 5 wherein said determining further comprises:  
performing a table lookup based on a virtual circuit identifier to obtain an authorized domain  
list that includes authorized domains for said virtual circuit identifier;  
indicating said domain is unauthorized when said domain name is not in said authorized  
domain list;  
indicating said domain is authorized when said domain name is in said authorized domain  
list; and  
performing a table lookup based on said domain name to obtain a tunnel ID when said  
domain name is authorized.

13. (Original) The method of claim 12 wherein said virtual circuit identifier comprises a VPI/VCI identifier.
14. (Currently Amended) A program storage device readable by a machine, embodying a program of instructions executable by the machine to perform a method to control subscriber access in a network capable of establishing connections with a plurality of domains, the method comprising:
- receiving, at an access server coupled to a first communication network and a second communication network, a communication from a subscriber on said first communication network, said communication optionally including a domain identifier associated with a domain on said second communication network; and
- ~~determining whether said subscriber is authorized to access said domain based upon said domain identifier and a list of authorized domains for a virtual circuit used to receive said communication; and~~
- authorizing subscriber access to said domain on said second communication network upon
- determining when said domain identifier is included in said a list of authorized domains for a virtual circuit used to receive said communication, said authorizing responsive to said receiving.
15. (Original) The program storage device of claim 14, further comprising terminating said communication when said domain identifier is not included in said list.

16. (Original) The program storage device of claim 14 wherein said communication comprises a Point-to-Point Protocol (PPP) session.
17. (Original) The program storage device of claim 16 wherein  
said PPP session comprises a tunneling session;  
said determining further comprises assigning a tunnel ID; and  
said PPP session is forwarded onto a tunnel associated with said tunnel ID when said  
subscriber is authorized to access said domain.
18. (Original) The program storage device of claim 17 wherein said tunneling session comprises  
an L2TP session.
19. (Original) The program storage device of claim 18 wherein said determining further  
comprises:  
issuing an authorized domain list request including a virtual circuit identifier;  
receiving an authorized domain list that includes authorized domains for said identifier;  
indicating said domain is unauthorized when said domain name is not in said domain list;  
indicating said domain is authorized when said domain name is in said domain list;  
issuing a tunnel ID request including said domain name when said domain name is  
authorized; and  
receiving a tunnel ID.
20. (Original) The program storage device of claim 19 wherein

said authorized domain list request is serviced by an AAA server; and  
an AAA server services said tunnel ID request.

21. (Original) The program storage device of claim 19 wherein said virtual circuit identifier comprises a VPI/VCI identifier.
22. (Original) The program storage device of claim 18 wherein said determining further comprises:  
issuing a tunnel ID request including said domain name and a virtual circuit identifier; and  
receiving a tunnel ID.
23. (Original) The program storage device of claim 22 wherein an AAA server services said tunnel ID request.
24. (Original) The program storage device of claim 22 wherein said virtual circuit identifier comprises a VPI/VCI identifier.
25. (Original) The program storage device of claim 18 wherein said determining further comprises:  
performing a table lookup based on a virtual circuit identifier to obtain an authorized domain list that includes authorized domains for said virtual circuit identifier;  
indicating said domain is unauthorized when said domain name is not in said authorized domain list;

indicating said domain is authorized when said domain name is in said authorized domain list; and

performing a table lookup based on said domain name to obtain a tunnel ID when said domain name is authorized.

26. (Original) The program storage device of claim 25 wherein said virtual circuit identifier comprises a VPI/VCI identifier.
27. (Currently Amended) An apparatus for controlling subscriber access in a network capable of establishing connections with a plurality of domains, the apparatus comprising:
- means for receiving, at an access server coupled to a first communication network and a second communication network, a communication from a subscriber on said first communication network, said communication optionally including a domain identifier associated with a domain on said second communication network; and
- ~~means for determining whether said subscriber is authorized to access said domain based upon said domain identifier and a list of authorized domains for a virtual circuit used to receive said communication; and~~
- means for authorizing subscriber access to said domain on said second communication network upon determining when said domain identifier is included in said a list of authorized domains for a virtual circuit used to receive said communication, said authorizing responsive to said receiving.

28. (Original) The apparatus of claim 27, further comprising means for terminating said communication when said domain identifier is not included in said list.
29. (Original) The apparatus of claim 27 wherein said communication comprises a Point-to-Point Protocol (PPP) session.
30. (Original) The apparatus of claim 29 wherein  
said PPP session comprises a tunneling session;  
said determining further comprises means for assigning a tunnel ID; and  
said PPP session is forwarded onto a tunnel associated with said tunnel ID when said subscriber is authorized to access said domain.
31. (Original) The apparatus of claim 30 wherein said tunneling session comprises an L2TP session.
32. (Previously Presented) The apparatus of claim 31 wherein said determining further comprises:  
means for issuing an authorized domain list request including a virtual circuit identifier;  
means for receiving an authorized domain list that includes authorized domains for said identifier;  
means for indicating said domain is unauthorized when said domain name is not in said domain list;



means for indicating said domain is authorized when said domain name is in said domain

list;

means for issuing a tunnel ID request including said domain name when said domain name

is authorized; and

means for receiving a tunnel ID.

33. (Original) The apparatus of claim 32 wherein  
said authorized domain list request is serviced by an AAA server; and  
an AAA server services said tunnel ID request.
34. (Original) The apparatus of claim 32 wherein said virtual circuit identifier comprises a  
VPI/VCI identifier.
35. (Original) The apparatus of claim 31 wherein said determining further comprises:  
means for issuing a tunnel ID request including said domain name and a virtual circuit  
identifier; and  
means for receiving a tunnel ID.
36. (Original) The apparatus of claim 35 wherein an AAA server services said tunnel ID  
request.
37. (Original) The apparatus of claim 35 wherein said virtual circuit identifier comprises a  
VPI/VCI identifier.

38. (Original) The apparatus of claim 31 wherein said determining further comprises:
- means for performing a table lookup based on a virtual circuit identifier to obtain an authorized domain list that includes authorized domains for said virtual circuit identifier;
  - means for indicating said domain is unauthorized when said domain name is not in said authorized domain list;
  - means for indicating said domain is authorized when said domain name is in said authorized domain list; and
  - means for performing a table lookup based on said domain name to obtain a tunnel ID when said domain name is authorized.
39. (Original) The apparatus of claim 38 wherein said virtual circuit identifier comprises a VPI/VCI identifier.
40. (Original) An access server capable of forcing subscribers of a communications system to gain access exclusively to a domain network associated with a virtual circuit, said access server comprising:
- an authorized domain list request generator capable of generating an authorized domain list request including a virtual circuit identifier associated with a virtual circuit used to accept a PPP session authentication request, said PPP session authentication request including a domain identifier;
  - an assessor capable of determining whether said domain identifier is in said domain list;

a tunnel TD request generator capable of generating a tunnel ID request including said domain identifier; and  
an authorizer capable of granting users domain access based upon said authorized domain list.

41. (Original) The access server of claim 40, further comprising:

a first receiving interface capable of accepting said PPP session authentication request;  
a first forwarding interface capable of sending said authorized domain list request to an AAA server;  
a second receiving interface capable of accepting a requested authorized domain list; a second forwarding interface capable of sending said tunnel ID request to an AAA server;  
a third receiving interface capable of accepting a requested tunnel ID; and  
a third forwarding interface capable of forwarding said PPP session on a tunneling session associated with said tunnel ID.

42. (Original) The access server of claim 40 wherein said tunneling session comprises an L2TP session.

43. (Original) The access server of claim 42 wherein said virtual circuit identifier comprises a Virtual Path Identifier (VPI) / Virtual Channel Identifier (VCI).

44. (Original) The access server of claim 43 wherein said first receiving interface comprises at least one access multiplexer, each access multiplexer having a plurality of inputs for receiving a service request, each of said inputs being associated with a particular subscriber virtual circuit.
45. (Original) The access server of claim 41 wherein said AAA server and said access server communicate using the Remote Authorization Dial-In User Service (RADIUS) protocol.
46. (Original) An access server capable of forcing subscribers of a communications system to gain access exclusively to a domain network associated with a virtual circuit, said access server comprising:
- a tunnel ID request generator capable of generating a tunnel ID request, said tunnel ID request including a virtual circuit identifier associated with a virtual circuit used to accept a PPP authentication request; and
  - an authorizer capable of granting users domain access based upon a list of authorized domains for said virtual circuit.
47. (Original) The access server of claim 46, further comprising:
- a first receiving interface capable of accepting said PPP session authentication request, said PPP session authentication request including a domain identifier;
  - a first forwarding interface capable of sending said tunnel ID request to an AAA server;
  - a second receiving interface capable of accepting a requested tunnel ID; and

a second forwarding interface capable of forwarding said PPP session on a tunneling session associated with said tunnel ID.

48. (Original) The access server of claim 47 wherein said tunneling session comprises an L2TP session.
49. (Original) The access server of claim 48 wherein said virtual circuit identifier comprises a Virtual Path Identifier (VPI) / Virtual Channel Identifier (VCI).
50. (Original) The access server of claim 46 wherein said first receiving interface comprises at least one access multiplexer, each access multiplexer having a plurality of inputs for receiving a service request, each of said inputs being associated with a particular subscriber virtual circuit.
51. (Original) The access server of claim 47 wherein said AAA server and said access server communicate using the Remote Authorization Dial-In User Service (RADIUS) protocol.
52. (Original) An access server capable of forcing subscribers of a communications system to gain access exclusively to a domain network associated with a virtual circuit, said access server comprising:  
  
a memory device capable of storing a domain list table and a tunnel ID table, said domain list table including a plurality of virtual circuit identifiers and associated domain

identifiers, said tunnel ID table including a plurality of domain names and associated tunnel IDs;

an authorized domain list determiner capable of determining an authorized domain list based upon said domain list table and a domain identifier within a PPP authentication request, said PPP authentication request received on a virtual circuit having a virtual circuit identifier;

an assessor capable of determining whether said domain identifier is in said domain list;

a tunnel ID determiner capable of determining a tunnel ID based upon said tunnel ID table and said domain identifier; and

an authorizer capable of granting subscribers domain access based upon said authorized domain list.

53. (Previously Presented) The access server of claim 52, further comprising:

a receiving interface capable of accepting said PPP session authentication request; and

a forwarding interface capable of forwarding said PPP session on a tunneling session associated with said tunnel ID.

54. (Original) The access server of claim 53 wherein said tunneling session comprises an L2TP session.

55. (Original) The access server of claim 54 wherein said virtual circuit identifier comprises a Virtual Path Identifier (VPI) / Virtual Channel Identifier (VCI).

56. (Original) The access server of claim 52 wherein said first receiving interface comprises at least one access multiplexer, each access multiplexer having a plurality of inputs for receiving a service request, each of said inputs being associated with a particular subscriber virtual circuit.
57. (Previously Presented) A method for controlling subscriber access in a network capable of establishing connections with a plurality of domains, comprising:
- receiving an L2TP session from a subscriber using a first communication network coupled to at least one other communication network, said L2TP session optionally including a domain identifier associated with a domain on said at least one other communication network;
- determining whether said subscriber is authorized to access said domain based upon said domain identifier and a list of authorized domains for a virtual circuit used to receive said L2TP session, said determining comprising:
- issuing an authorized domain list request including a virtual circuit identifier;
- receiving an authorized domain list that includes authorized domains for said identifier;
- indicating said domain is unauthorized when said domain name is not in said domain list;
- indicating said domain is authorized when said domain name is in said domain list;
- issuing a tunnel ID request including said domain name when said domain name is authorized;
- receiving a tunnel ID; and
- assigning said tunnel ID; and

authorizing subscriber access to said domain when said domain identifier is included in said list, wherein said L2TP session is forwarded onto a tunnel associated with said tunnel ID when said subscriber is authorized to access said domain.

58. (Previously Presented) The method of claim 57 wherein said authorized domain list request is serviced by an AAA server; and an AAA server services said tunnel ID request.
59. (Previously Presented) The method of claim 57 wherein said virtual circuit identifier comprises a VPI/VCI identifier.
60. (Previously Presented) A method for controlling subscriber access in a network capable of establishing connections with a plurality of domains, comprising:  
receiving an L2TP session from a subscriber using a first communication network coupled to at least one other communication network, said L2TP session optionally including a domain identifier associated with a domain on said at least one other communication network;  
determining whether said subscriber is authorized to access said domain based upon said domain identifier and a list of authorized domains for a virtual circuit used to receive said L2TP session, said determining comprising:  
performing a table lookup based on a virtual circuit identifier to obtain an authorized domain list that includes authorized domains for said virtual circuit identifier;  
indicating said domain is unauthorized when said domain name is not in said authorized domain list;



indicating said domain is authorized when said domain name is in said authorized

domain list;

performing a table lookup based on said domain name to obtain a tunnel ID when said

domain name is authorized; and

assigning said tunnel ID; and

authorizing subscriber access to said domain when said domain identifier is included in said

list, wherein said L2TP session is forwarded onto a tunnel associated with said tunnel

ID when said subscriber is authorized to access said domain.

61. (Previously Presented) The method of claim 60 wherein said virtual circuit identifier comprises a VPI/VCI identifier.

62. (Previously Presented) A program storage device readable by a machine, embodying a program of instructions executable by the machine to perform a method to control subscriber access in a network capable of establishing connections with a plurality of domains, the method comprising:

receiving an L2TP session from a subscriber using a first communication network coupled to

at least one other communication network, said L2TP session optionally including a

domain identifier associated with a domain on said at least one other communication network;

determining whether said subscriber is authorized to access said domain based upon said

domain identifier and a list of authorized domains for a virtual circuit used to receive said L2TP session, said determining comprising:

issuing an authorized domain list request including a virtual circuit identifier;

receiving an authorized domain list that includes authorized domains for said identifier;  
 indicating said domain is unauthorized when said domain name is not in said domain  
 list;

indicating said domain is authorized when said domain name is in said domain list;  
 issuing a tunnel ID request including said domain name when said domain name is  
 authorized;

receiving a tunnel ID; and

assigning said tunnel ID; and

authorizing subscriber access to said domain when said domain identifier is included in said  
 list, wherein said L2TP session is forwarded onto a tunnel associated with said tunnel  
 ID when said subscriber is authorized to access said domain.

63. (Previously Presented) The program storage device of claim 62 wherein  
 said authorized domain list request is serviced by an AAA server; and  
 an AAA server services said tunnel ID request.

64. (Previously Presented) The program storage device of claim 62 wherein said virtual circuit  
 identifier comprises a VPI/VCI identifier.

65. (Previously Presented) A program storage device readable by a machine, embodying a  
 program of instructions executable by the machine to perform a method to control subscriber  
 access in a network capable of establishing connections with a plurality of domains, the  
 method comprising:

receiving an L2TP session from a subscriber using a first communication network coupled to at least one other communication network, said L2TP session optionally including a domain identifier associated with a domain on said at least one other communication network;

determining whether said subscriber is authorized to access said domain based upon said domain identifier and a list of authorized domains for a virtual circuit used to receive said L2TP session, said determining comprising:

performing a table lookup based on a virtual circuit identifier to obtain an authorized domain list that includes authorized domains for said virtual circuit identifier;

indicating said domain is unauthorized when said domain name is not in said authorized domain list;

indicating said domain is authorized when said domain name is in said authorized domain list;

performing a table lookup based on said domain name to obtain a tunnel ID when said domain name is authorized; and

assigning said tunnel ID; and

authorizing subscriber access to said domain when said domain identifier is included in said list, wherein said L2TP session is forwarded onto a tunnel associated with said tunnel ID when said subscriber is authorized to access said domain.

66. (Previously Presented) The program storage device of claim 65 wherein said virtual circuit identifier comprises a VPI/VCI identifier.

67. (Previously Presented) An apparatus for controlling subscriber access in a network capable of establishing connections with a plurality of domains, comprising:
- means for receiving an L2TP session from a subscriber using a first communication network coupled to at least one other communication network, said L2TP session optionally including a domain identifier associated with a domain on said at least one other communication network;
  - means for determining whether said subscriber is authorized to access said domain based upon said domain identifier and a list of authorized domains for a virtual circuit used to receive said L2TP session, said means for determining comprising:
    - means for issuing an authorized domain list request including a virtual circuit identifier;
    - means for receiving an authorized domain list that includes authorized domains for said identifier;
  - means for indicating said domain is unauthorized when said domain name is not in said domain list;
  - means for indicating said domain is authorized when said domain name is in said domain list;
  - means for issuing a tunnel ID request including said domain name when said domain name is authorized;
  - means for receiving a tunnel ID; and
  - means for assigning said tunnel ID; and
  - means for authorizing subscriber access to said domain when said domain identifier is included in said list, wherein said L2TP session is forwarded onto a tunnel associated with said tunnel ID when said subscriber is authorized to access said domain.

68. (Previously Presented) The apparatus of claim 67 wherein  
said authorized domain list request is serviced by an AAA server; and  
an AAA server services said tunnel ID request.
69. (Previously Presented) The apparatus of claim 67 wherein said virtual circuit identifier  
comprises a VPI/VCI identifier.
70. (Previously Presented) An apparatus for controlling subscriber access in a network capable  
of establishing connections with a plurality of domains, comprising:  
means for receiving an L2TP session from a subscriber using a first communication network  
coupled to at least one other communication network, said L2TP session optionally  
including a domain identifier associated with a domain on said at least one other  
communication network;  
means for determining whether said subscriber is authorized to access said domain based  
upon said domain identifier and a list of authorized domains for a virtual circuit used to  
receive said L2TP session, said means for determining comprising:  
means for performing a table lookup based on a virtual circuit identifier to obtain an  
authorized domain list that includes authorized domains for said virtual circuit  
identifier;  
means for indicating said domain is unauthorized when said domain name is not in said  
authorized domain list;  
means for indicating said domain is authorized when said domain name is in said  
authorized domain list;

means for performing a table lookup based on said domain name to obtain a tunnel ID

when said domain name is authorized; and

assigning said tunnel ID; and

means for authorizing subscriber access to said domain when said domain identifier is

included in said list, wherein said L2TP session is forwarded onto a tunnel associated

with said tunnel ID when said subscriber is authorized to access said domain.

71. (Previously Presented) The apparatus of claim 70 wherein said virtual circuit identifier comprises a VPI/VCI identifier.